

WHAT IS CLAIMED IS:

1. A memory module for being inserted in any one of connectors formed on a motherboard, comprising:

a memory chip;

a pin for being connected to the connector;

a bus for connecting said memory chip to said pin;

a terminating resistor connected to one end of said bus,

and

a stab resistor connected between said pin and the other end of said bus.

2. A memory module as claimed in Claim 1, said connectors being connected to a memory controller in a stab connection style, said stab resistor and said terminating resistor having stab resistance R_s and terminating resistance R_{term} , respectively, wherein

said stab resistance R_s and said terminating resistance R_{term} are given by:

$$R_s = (N - 1) \times Z_{effdimm} / N, \text{ and}$$

$$R_{term} = Z_{effdimm}$$

where N represents the number of said connectors; and $Z_{effdimm}$, effective impedance of a memory chip arrangement portion consisting of said bus and said memory chip.

3. A memory module as claimed in Claim 1 further comprising other memory chips, wherein said bus is connected to all of the memory chips in common.

4. A memory module as claimed in Claim 1 further comprising other memory chips, other pins corresponding to said other memory chips respectively, and other buses for connecting said memory chips to said other pins severally.

5. A memory module as claimed in Claim 1, wherein said bus comprises a bi-directional bus.

6. A memory module as claimed in Claim 1, wherein said bus comprises a unidirectional bus.

7. A memory module as claimed in Claim 1, wherein said terminating resistor is formed in said memory chip.

8. A memory system including a plurality of memory modules inserted in connectors formed on a motherboard, wherein each of said memory module comprises:

a memory chip;
a pin for being connected to one of said connectors;
a bus for connecting said memory chip to said pin;
a terminating resistor connected to one end of said bus,
and

a stab resistor connected between said pin and the other end of said bus.

9. A memory system as claimed in Claim 8, said connectors being connected to a memory controller in a stab connection style on a motherboard, said stab resistor and said terminating resistor having stab resistance R_s and terminating resistance

Rterm, respectively, wherein

said stub resistance Rs and said terminating resistance Rterm are given by:

$$Rs = (N - 1) \times Z_{effdimm} / N, \text{ and}$$

$$R_{term} = Z_{effdimm}$$

where N represents the number of said memory modules; and $Z_{effdimm}$, effective impedance of a memory chip arrangement portion consisting of said bus and said memory chip, and wherein said mother board has wiring impedance Z_{mb} represented by:

$$Z_{mb} = (2N - 1) \times Z_{effdimm}.$$

10. A memory system as claimed in Claim 8, each of said memory modules further comprising other memory chips, wherein said bus is connected to all of the memory chips in common in each of said memory modules.

11. A memory system as claimed in Claim 8, each of said memory modules further comprising other memory chips, other pins corresponding to said other memory chips respectively, and other buses for connecting said memory chips to said other pins severally.

12. A memory system as claimed in Claim 8, wherein said bus comprises a bi-directional bus.

13. A memory system as claimed in Claim 8, wherein said bus comprises a unidirectional bus.

14. A memory system as claimed in Claim 13, said connectors connected to said memory controller in stab connection style, said stab resistor and said terminating resistor having stab resistance R_s and terminating resistance R_{term} , respectively, wherein

said stab resistance R_s and said terminating resistance R_{term} meet an equation of:

$$Z_{mb} = (R_s + Z_{effdimm}) / N$$

where Z_{mb} represents wiring impedance of said motherboard; $Z_{effdimm}$, effective impedance of a memory chip arrangement portion consisting of said bus and said memory chip; and N , the number of said memory module.

15. A memory module as claimed in Claim 1, wherein said terminating resistor is formed in said memory chip.